**Unit 1.3 - Government Intervention**

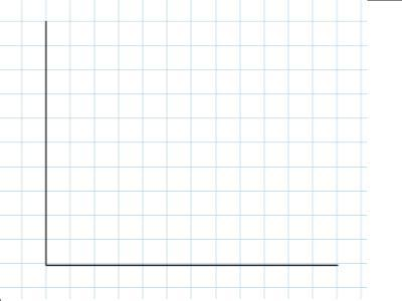
*Calculating effects of subsidies*

Assume the supply and demand for petrol in China is represented by the following equations:

**Qs = -200 + 100P Qd = 1,000 - 200P**

where Qs is the quantity supplied (in millions of litres) by Chinese petrol firms and Qd is the quantity demanded (in millions of litres) by Chinese petrol consumers. P is the price per litre for petrol expressed in Chinese yuan.

1. On the graph below, illustrate the market for petrol in China in equilibrium assuming no government intervention.



1. Calculate the equilibrium price and quantity of petrol in China, and label them on your graph above.

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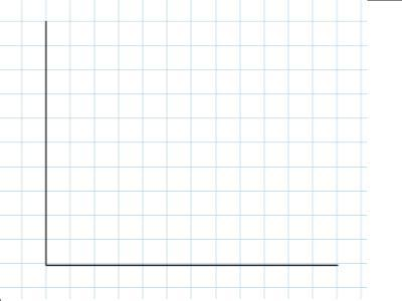
1. Calculate the amount of consumer and producer surplus in the Chinese petrol market. Add these together to determine the amount of total welfare in the petrol market.

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1. Assume that the government wishes to make petrol more affordable to Chinese consumes, so it provide a 1 yuan subsidy per litre for petrol producers. Derive the new supply equation for petrol in China.

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1. On the graph below, plot the original supply and demand curves, then show the effect of the 1 yuan subsidy for petrol producers.



1. Calculate the new equilibrium price consumers will pay for petrol and the new equilibrium quantity of petrol produced. Calculate the price that petrol producers will receive following the 1 yuan subsidy. Indicate these on your graph above.

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1. Calculate each of the following:
   1. the new area of consumer surplus that will result from the petrol subsidy.

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* 1. the new area of producer surplus following the subsidy.

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* 1. The net increase in consumer and producer surplus resulting from the subsidy.

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1. Calculate the cost the subsidy imposes on taxpayers in China.

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1. Compare the cost you calculated in number 8 to the net increase in consumer and producer surplus you calculated in 7,c). What does the difference between these two figures represent?

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1. On the graph you drew in #5, shade and label the area that represents the net effect on total welfare of the subsidy. Does this represent an increase or a decrease in overall efficiency in the petrol market? Explain.

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